IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Duvaut *et al.*

Serial No.: 10/626,714

Filed: July 25, 2003

Confirmation No.: 1895

Group Art Unit: 2611

Examiner: Tse, Young Toi

TKHR Ref: 060707.1450
Client Ref: GV234

For: **DBMSOL AND FBMSOL POWER SPECTRAL DENSITY MASKS**

REMARKS IN SUPPORT OF
PRE-APPEAL BRIEF CONFERENCE

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Applicants submit the following remarks in support of a Request for a Pre-Appeal Brief Conference.

REMARKS

Applicants respectfully submit that the Examiner's rejections of the claims in the pending application are clearly in error. The Examiner alleges that the claims are directed to non-statutory subject matter. The rejection is clearly in error because Applicants claim a Digital Subscriber Line (DSL) communications system that uses mathematical algorithms to configure a transmission sent by the system. Since a DSL communications system that transmits data is statutory subject matter, the rejection of the claims should be withdrawn.

Rejection of Claims

The Final Office Action dated February 9, 2007, rejected the following. Claims 1 - 28 have been rejected under 35 U.S.C. 101. For purposes of the pre-appeal brief conference, Applicants respectfully traverse these rejections and respectfully submit that clear cases of error exist, supported by the evidence in the record.

A. Rejection of Independent Claim 1

In the Final Office Action dated February 9, 2007, the Examiner erroneously rejected claim 1 under 35 U.S.C. § 101 as being directly related to non-statutory subject matter. The Examiner alleges (page 3) that claim 1 is:

> . . .directly related to non-statutory mathematical algorithms of an equation for calculating a power spectral density (PSD) mask for spectral shaping of a dual bit mab (DMB) mode downstream transmission and an equation for calculating a power spectral density (PSD) mask for spectral shaping of a far end cross talk (FEXT) bit map (FBM) mode downstream transmission.

This rejection is clearly in error because a communications system that transmits information is patentable subject matter under 35 U.S.C. § 101 and the guidelines described in the *Official Gazette Notice* of November 22, 2005, Section I.

The OG Notice first provides assistance to examiners in understanding recent court decisions that interpret the requirements of 35 U.S.C. § 101. In particular, the OG Notice explicitly acknowledges the breadth of what may qualify as a "patentable invention":

> As the Supreme Court held, Congress chose the expansive language of 35 U.S.C. Sec. 101 so as to include "anything under the sun that is made by man." Diamond v. Chakrabarty, 447 U.S. 303, 308-09, 206 USPQ 193, 197 (1980). . . .

Official Gazette Notice of November 22, 2005, Section IV.A.

Despite such inclusive language, the OG Notice indicates that there are limitations to what can be patented:

> Federal courts have held that 35 U.S.C. Sec. 101 does have certain limits. First, the phrase "anything under the sun that is made by man" is limited by the text of 35 U.S.C. Sec. 101, meaning that one may only patent something that is a machine, manufacture, composition of matter or a process. . . .
>
> The subject matter courts have found to be outside of, or exceptions to, the four statutory categories of invention is limited to abstract ideas, laws of nature and natural phenomena.

Official Gazette Notice of November 22, 2005, Section IV.A.

Therefore, an invention is patentable under 35 U.S.C. § 101 as long as it: (i) falls within one of the explicit statutory categories identified in 35 U.S.C. § 101 and (ii) does not comprise one of an abstract idea, a law of nature, or a natural phenomenon (i.e., the three "judicial exceptions").

The OG Notice next provides explicit instructions to examiners as to how to determine whether a claim falls within a statutory category of 35 U.S.C. § 101:

> To properly determine whether a claimed invention complies with the statutory invention requirements of 35 U.S.C. 101, USPTO personnel must first identify whether the claim falls within at least one of the four enumerated

> categories of patentable subject matter recited in section 101 (process, machine, manufacture or composition of matter).

Official Gazette Notice of November 22, 2005, Section IV.B.

Applicants respectfully submit that the claimed system, that uses mathematical algorithms to produce downstream transmissions, falls under a statutory category of 35 U.S.C. § 101. That the system merely uses algorithms to produce down stream transmissions, does not make the system unpatentable. Thus, for at least this reason, the rejection of claim 1 under 35 U.S.C. § 101 should be withdrawn.

Additionally, even if, *arguendo*, the system of claim 1 does not fall into a statutory category of 35 U.S.C. § 101, claim 1 would still be patentable under the statute because it would fall under one of the judicial exceptions.

The OG Notice provides explicit instructions to examiners as to how to determine whether a claim falls within one of the judicial exceptions:

> Determining whether the claim falls within one of the four enumerated categories of patentable subject matter recited in 35 U.S.C. Sec. 101 (process, machine, manufacture or composition of matter) does not end the analysis because claims directed to nothing more than abstract ideas (such as mathematical algorithms), natural phenomena, and laws of nature are not eligible and therefore are excluded from patent protection. . . .
>
> . . . In evaluating whether a claim meets the requirements of section 101, the claim must be considered as a whole to determine whether it is for a particular application of an abstract idea, natural phenomenon, or law of nature, rather than for the abstract idea, natural phenomenon, or law of nature itself.

Official Gazette Notice of November 22, 2005, Section IV.C.

The OG Notice further states that a claim that relates to an abstract idea, natural phenomenon, or law of nature may still be patentable:

> While abstract ideas, natural phenomena, and laws of nature are not eligible for patenting, methods and products employing abstract ideas,

> natural phenomena, and laws of nature to perform a real-world function may well be.

Official Gazette Notice of November 22, 2005, Section IV.C.

On that issue, the OG Notice expresses that "practical applications" of the judicial exceptions can be patentable and provides specific guidelines to aid examiners in determining whether a practical application of one of the judicial exceptions is claimed:

> To satisfy section 101 requirements, the claim must be for a practical application of the Sec. 101 judicial exception, which can be identified in various ways:
>
> - The claimed invention "transforms" an article or physical object to a different state or thing.
>
> - The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

Official Gazette Notice of November 22, 2005, Section IV.C.2.

Therefore, *if* a claim is related to one of the judicial exceptions there must be an appropriate "transformation" or otherwise must be a "useful, concrete, and tangible result."

From the foregoing, it is apparent that the issue of whether a "tangible result" is claimed is *only* to be considered if: (1) the claimed invention concerns one of the judicial exceptions (i.e., abstract ideas, natural phenomena, and laws of nature) *and* (2) the claimed invention does not "transform" an article or physical object to a different state or thing.

Thus, even if, *arguendo*, claim 1 fell under one of the judicial exceptions, the Examiner is bound to consider the claim **as a whole** to determine if it is directed towards a particular application of an abstract idea. Claimed features of claim 1 include an abstract idea (an algorithm) to affect a transmission. Though an algorithm by itself is

an abstract idea, a transmission is a useful, concrete, and tangible result from the application of the algorithm, in that it is a passage of electromagnetic energy.

Applicants respectfully submit that a transmission is in fact tangible for at least the reason that the transmission is measurable. That one may not be able to perceive the transmission without measurement equipment, does not make the transmission any less tangible than the sound waves produced by a dog whistle that are imperceptible to humans, but audible to canines.

Thus, evaluating claim 1 as a whole one must conclude that since the abstract idea (the algorithm) claimed is directed towards the tangible result of effecting a downstream transmission, claim 1 satisfies the judicial exception of 35 U.S.C. § 101.

Therefore, since claim 1 constitutes statutory subject matter, the rejection of claim 1 (and dependent claims 2-14) under 35 U.S.C. § 101 is clearly in error, and should be withdrawn.

B. Rejection of Independent Claim 15

Applicants respectfully submit that claim 15 is directed towards statutory subject matter for similar reasons as discussed above regarding claim 1. Therefore, since claim 15 constitutes statutory subject matter, the rejection of claim 1 (and dependent claims 16-28) under 35 U.S.C. § 101 is clearly in error, and should be withdrawn.

CONCLUSION

Favorable reconsideration and allowance, or the re-opening of prosecution on the merits, of the present application and claims 1-28 are hereby courteously requested.

No fee is believed to be due in connection with this amendment and response to Office Action. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 50-0835.

Respectfully submitted,

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